CLAIMS

1. A plate material vertical processing line comprising:

a plurality of processing devices each having a modular structure;

wherein each of the processing devices includes a platform; a conveyance means that is mounted on the platform and is configured to convey a plate material placed in a substantially upright position while supporting a lower end of the plate material; and a fluid guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state;

and wherein the processing devices include a combination of at least two processing devices selected from a scribing device, a venting device, a chamfering device, a cleaning agent washing device, a water washing device, a high-pressure water spray device,, and a plate material turn device.

2. A plate material vertical processing line comprising:

processing units of a plate material; and

a plurality of conveyance devices each having a modular structure;

wherein each of the conveyance devices includes:

a platform;

a conveyance means that is mounted on the platform and is configured to convey the plate material placed in a substantially upright position while supporting a lower end of the plate material;

a fluid guide that is mounted on the platform and is configured to apply a fluid pressure to a surface of the plate material to support the plate material in the substantially upright position and in a non-contact state; and

a mounting element that is mounted on the platform to mount each of the processing units;

wherein the processing units include a combination of at least two processing units selected from a scribing unit, a venting unit, a chamfering unit, a cleaning agent washing unit, a water washing unit, a high-pressure water spray unit, and a plate material turn unit.

3. The plate material vertical processing line according to claim 1 or claim 2, further comprising:

a direction conversion device of the plate material;

wherein the direction conversion device includes the platform; the conveyance means that conveys the plate material in the substantially upright position while supporting the lower end of the plate material; the fluid guide that supports the plate material in the non-contact state; and a direction conversion means that is mounted on the platform and is configured to convert direction of the conveyance means and the fluid guide within a horizontal plane.

4. The plate material vertical processing line according to claim 1 or claim 2, further comprising:

an acid treatment device of the plate material;

wherein the acid treatment device includes the platform; the conveyance means that is mounted on the platform and is configured to convey the plate material placed in the substantially upright position while supporting the lower end of the plate material; and an acid treatment means that is mounted on the platform and is configured to subject the surface of the plate material to acid treatment.

5. The plate material vertical processing line according to claim 1 or claim 2, further comprising:

a tiling device of the plate material;

wherein the tiling device includes the platform; the conveyance means that is mounted on the platform and is configured to convey the plate material placed in the substantially upright position while supporting the lower end of the plate material; and the fluid guide capable of being tilted in a direction perpendicular to the surface of the plate material.

6. The plate material vertical processing line according to claim 1 or claim 2, further comprising:

a parallel-shift device of the plate material;

wherein the parallel-shift device includes the platform; the conveyance means that conveys the plate material placed in the substantially upright position while supporting the lower end of the plate material; the fluid guide that supports the plate material in the non-contact state; and a linear reciprocation means that is mounted on the platform and is configured to move the conveyance means and the fluid guide in a direction perpendicular to a direction in which the plate material is conveyed.

7. The plate material vertical processing line according to claim 1 or 2, wherein the platform has casters at a lower end thereof.

8. The plate material vertical processing line according to claim 1 or 2, wherein each of the processing devices has a coupling member by which the processing device is removably coupled to its adjacent processing device.